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ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

EXAMINER	
LEE, RICHARD J	

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/854,461	HANNUKSELA ET AL.	
	Examiner	Art Unit	
	Richard Lee	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 June 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *See Continuation Sheet* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *See Continuation Sheet* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 1-6, 9-12, 14-18, 19/1, 19/2, 20/1, 20/2, 21-41, 42/32, 42/33, 43/32, 43/33, 44-63.

Continuation of Disposition of Claims: Claims rejected are 1-6, 9-12, 14-18, 19/1, 19/2, 20/1, 20/2, 21-41, 42/32, 42/33, 43/32, 43/33, 44-63.

1. The applicants' arguments from the amendment filed June 16, 2005 have been noted and considered, but are deemed moot in view of the following new grounds of rejections.

2. Claims 1-6, 9-12, 14-18, 19/1, 19/2, 20/1, 20/2, 21-41, 42/32, 42/33, 43/32, 43/33, 44-63 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For examples:

(1) claim 1, line 4, line 12, claim 2, line 13, claim 9, line 6, claim 10, line 11, claim 11, line 7, claim 12, line 12, line 23, claim 14, line 6, claim 16, line 2, claim 28, line 2, claim 32, line 2, line 9, claim 33, line 13, claim 39, line 3, claim 46, line 4, claim 51, line 2, claim 53, line 7, line 17, the phrase "can be", as respectively claimed does not show positive recitation and as such renders the claim vague and indefinite. Suggestion: change "can be" to "is";

(2) claim 3, line 4, "the predetermined criterion" shows no clear antecedent basis;

(3) claim 10, line 12, "the encoded video signal" shows no clear antecedent basis;

(4) claim 12, line 13, "the encoded video signal" shows no clear antecedent basis;

(5) claim 15, line 2, "the current frame" shows no clear antecedent basis;

(6) claim 15, line 2, it is unclear what "it" is referring to as claimed;

(7) claim 34, line 4, "the predetermined criterion" shows no clear antecedent basis;

(8) claim 35, line 2, "the further alternative pictures" shows no clear antecedent basis;

(9) claim 35, lines 2-3, "the predetermined criterion" shows no clear antecedent basis;

(10) claim 35, line 3, "the current frame" shows no clear antecedent basis;

(11) claim 36, lines 2-3, "the encoded video signal" shows no clear antecedent basis;

(12) claim 37, line 2, it is unclear what "it" is referring to as claimed;

(13) claim 37, line 3, "the encoded video signal" shows no clear antecedent basis;

(14) claim 38, lines 3-4, "the Supplemental Enhancement Information" shows no clear antecedent basis;

(15) claim 53, line 9, "the encoded video signal" shows no clear antecedent basis;

(16) claim 54, line 6, claim 55, line 4, claim 60, line 2, the phrase "can be" as respectively claimed does not show positive recitation and as such renders the claim vague and indefinite; and

(17) claim 59, lines 3-4, "the Supplemental Enhancement Information" shows no clear antecedent basis.

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 54-63 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 54 recites a signal claim per se, showing no practical application and as such does not fall within the statutory classes set forth in 35 U.S.C. 101. And since dependent claims 55-63 are directed to further limitations showing no practical application, claims 54-63 as a whole does not fall within the statutory classes set forth in 35 U.S.C. 101.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 3, 10, 14, 16, 20/1, 22, 32, 34, 39, 43/32, 45, 53-55, and 60 are rejected under 35 U.S.C. 102(e) as being anticipated by Normile (6,438,165).

Due to the indefiniteness of the claims as pointed out in the above paragraph (2), the Examiner wants to point out that the claims are being read in the broadest sense.

Normile discloses a method and apparatus for advanced encoder system as shown in Figures 2-4, and the same method of encoding a video signal representing a sequence of pictures to form an encoded video signal, multimedia terminal device including at least one of a video encoder and a video decoder (It is noted that since the alternative is claimed, either the video encoder or video decoder needs to be met for anticipation purposes. In the present case, Normile shows a multimedia device including a video encoder as shown in Figure 3), and video encoder (see Figure 3), comprising the same input (i.e., 310 of Figure 3) for receiving a video signal representing a sequence of pictures (see column 4, line 51 to column 5, line 23), and a predictive coder (365, 370 of Figures 3 and 4), the predictive coder being arrange to form a prediction of at least part of a current picture of the sequence from a default reference picture for the current picture (i.e., the previous frame provided by 433 of Figure 4 is considered the default reference picture for prediction of the current frame, see column 6, lines 25-67, column 8, lines 3-45); the encoder being arranged to provide an indicator (i.e., as provided at the output of 440 of Figure 4,

see column 6, lines 25-67, column 8, lines 3-45) for the current picture or a part of the current picture identifying a further reference picture (i.e., the reference frames generated by 430 of Figure 4 are considered the further reference picture, see column 8, lines 3-45) of the sequence that can be used as an alternative reference picture for the current picture or the part of the current picture when decoding the encoded video signal (see column 4, lines 8-33); identifying the further picture of the sequence (i.e., reference frame generated by 430 of Figure 4) that can be used as an alternative reference picture for the current picture or the part of the current picture by comparing at least part of the default picture (i.e., previous frame provided by 433 of Figure 4) or the current picture (i.e., current frame, see column 6, lines 25-67, column 8, lines 3-45) with at least one further picture of the sequence (see column 6, lines 52-67), to calculate a measure of similarity between the default reference picture or the current picture and each of the at least one further reference picture and, if the measure of similarity calculated using a particular further picture meets a predetermined criterion, outputting an indicator (i.e., as provided at the output of 440 of Figure 4) identifying the particular further picture as a picture of the sequence that can be used as an alternative reference picture for the current picture or the part of current picture (see column 6, lines 25-67, column 8, lines 3-45); comparing at least pat of the default reference picture or the current reference picture with a plurality of further pictures (the plurality of reference frames provided by 430 of Figure 4 are considered the plurality of further pictures, see column 8, lines 26-45), and outputting an indicator for each further picture that meets the predetermined criterion and providing more than one indicator for the picture or a part of the current picture (see 430, 433, 440 of Figure 4); the indicator identifying a further picture as a picture of the sequence that can be used as an alternative reference picture for the current picture

or the part of the current picture indicates the temporal reference of the further picture, wherein the video encoder is arranged to use the temporal reference of the further pictures as the indicator identifying a further picture as a picture of the sequence that can be used as an alternative reference picture for the current picture or the part of the current picture (see column 6, lines 5-24, column 6, lines 25-67, column 8, lines 3-45); wherein the video encoder is arranged to assess the similarity between the default reference picture and a further picture using picture histograms (see column 6, lines 5-67); wherein the encoder is arranged to provide the indicator (i.e., as provided by 440 of Figure 4) with the current picture or part of the picture; and including more than one indicator (i.e., as provided by 430 of Figure 4, see column 8, lines 3-45) provided for the current picture or the part of the current picture, each of the more than one indicator identifying a further picture of the sequence that can be used as an alternative reference picture for the current picture or the part of the current picture when decoding the encoded video signal (see 430, 440 of Figure 4 and column 8, lines 3-45).

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 19/1 and 42/32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Normile.

Normile discloses substantially the same method of encoding a video signal representing a sequence of pictures to form an encoded video signal, multimedia terminal device including at least one of a video encoder and a video decoder, and video encoder as above, but does not

particularly disclose wherein the video encoder is arranged to determine the measure of similarity as a sum of absolute differences calculated using differences in pixel values between the default reference picture and a further picture as claimed in claims 19/1 and 42/32. It is noted that Normile does teach a measure of similarity between the default reference picture (i.e., previous frame as provided by 443 of Figure 4) and a further picture (i.e., reference frame as provided by 430 of Figure 4) is being calculated within reference frame comparator 440 (see column 6, lines 52-67, column 8, lines 3-45), but Normile does not specifically teach the calculation based upon a sum of absolute differences as claimed. Without specific criticality and since Normile teaches some sort of calculations within comparator 440 for deriving the same end results, it is considered obvious for one of ordinary skill in the art to provide the specific sum of absolute difference calculations within the comparator 440 of Normile. Therefore, it would have been obvious to one of ordinary skill in the art, having the Normile reference in front of him/her and the general knowledge of frame differencing techniques, would have had no difficulty in providing the specific sum of absolute differencing calculations within the comparator 440 of Normile if such calculations were not already a part of Normile for the same well known calculation of the measure of similarity between frames purposes as claimed.

9. Claims 2, 17, 18, 19/2, 20/2, 33, 40, 41, 42/33, 43/33, 61, and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Normile as applied to claims 1, 3, 10, 14, 16, 20/1, 22, 32, 34, 39, 43/32, 45, 53-55, and 60 in the above paragraph (6), and further in view of Yagasaki (5,515,388).

Normile discloses substantially the same method of encoding a video signal representing a sequence of pictures to form an encoded video signal, multimedia terminal device including at

least one of a video encoder and a video decoder, and video encoder as above, further including comparing at least part of the first default reference picture (i.e., previous frame as provided by 433 of Figure 4, and see column 6, lines 25-67, column 8, lines 3-45) or the current picture (i.e., current frame as provided by 431 of Figure 4) with at least one further picture (i.e., reference frame as provided by 430 of Figure 4, see column 8, lines 3-45) of the sequence occurring temporally before the current picture, to calculate a measure of similarity between the first default reference picture or the current picture and each of the at least one further reference picture and, if the measure of similarity calculated using a particular further picture meets a predetermined criterion, outputting an indicator (i.e., as provided at the output of 440 of Figure 4) identifying the particular further picture as a picture of the sequence that can be used as an alternative reference picture for the current picture or the part of the current picture (see column 6, lines 25-67, column 8, lines 3-45), the first default reference picture occurring temporally before the current picture (see column 8, lines 3-45).

Normile does not particularly disclose, though, the followings:

(a) forming a prediction of at least part of the current picture from a first default reference picture and a second default reference picture for the current picture, the second default reference picture occurring temporally after the current picture, wherein the video encoder is arranged to provide alternative reference pictures for B pictures and P pictures, wherein the video encoder is arranged to provide alternative reference pictures only for P pictures as claimed in claim 2, 17, 18, 33, 40, 41, 61, and 62; and

(b) wherein the video encoder is arranged to determine the measure of similarity as a sum of absolute differences calculated using differences in pixel values between the default reference picture and a further picture as claimed in claim 19/2, 42/33.

Regarding (a), Yagasaki discloses an apparatus and method for preventing repetitive random errors in transform coefficients as shown in Figure 1, and teaches the conventional use of reference frames temporally before and after the current frame for predicting a current B frame (i.e., B frame prediction, see column 4, lines 45-53), and the particular P frame predictions (see column 4, lines 41-44). It is considered obvious to provide the B and P current frame predictions from Yagasaki as the specific current picture predictions within Normile. Having provided the B and P current frame predictions of Yagasaki within Normile, and since Normile teaches the particular use of alternative reference pictures for current pictures (see column 6, lines 25-67, column 8, lines 3-45 of Normile), the video encoder of Normile may therefore obviously be arranged to provide alternative reference pictures for B pictures and P pictures, and arranged to provide alternative reference pictures only for P pictures as claimed. Therefore, it would have been obvious to one of ordinary skill in the art, having the Normile and Yagasaki references in front of him/her and the general knowledge of B and P frame predictions within video encoders, would have had no difficulty in providing the B and P current frame predictions of Yagasaki within Normile so that the video encoder of Normile may be arranged to provide alternative reference pictures for B pictures and P pictures, and arranged to provide alternative reference pictures only for P pictures for the same well known B and P picture predictive processing purposes as claimed.

Regarding (b), it is noted that Normile does teach a measure of similarity between the default reference picture (i.e., previous frame as provided by 443 of Figure 4) and a further picture (i.e., reference frame as provided by 430 of Figure 4) is being calculated within reference frame comparator 440 (see column 6, lines 52-67, column 8, lines 3-45), but Normile does not specifically teach the calculation based upon a sum of absolute differences as claimed. Without specific criticality and since Normile teaches some sort of calculations within comparator 440 for deriving the same end results, it is considered obvious for one of ordinary skill in the art to provide the specific sum of absolute difference calculations within the comparator 440 of Normile. Therefore, it would have been obvious to one of ordinary skill in the art, having the Normile reference in front of him/her and the general knowledge of frame differencing techniques, would have had no difficulty in providing the specific sum of absolute differencing calculations within the comparator 440 of Normile if such calculations were not already a part of Normile for the same well known calculation of the measure of similarity between frames purposes as claimed.

10. Claims 5, 15, 36, 37, 57, and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Normile as applied to claims 1, 3, 10, 14, 16, 20/1, 22, 32, 34, 39, 43/32, 45, 53-55, and 60 in the above paragraph (6), and further in view of Sun et al of record (5,455,629).

Normile discloses substantially the same method of encoding a video signal representing a sequence of pictures to form an encoded video signal, multimedia terminal device including at least one of a video encoder and a video decoder, and video encoder as above, but does not particularly disclose wherein the video encoder is arranged to include the indicator or indicators in a picture header of the encoded video signal, wherein if the indicator is associated with a part

of the current frame, the video encoder is arranged to include it in a picture segment header or a macroblock header of the encoded video signal as claimed in claims 5, 15, 36, 37, 57, and 58. The particular use of picture headers for including indicators are however old and well recognized in the art, as exemplified by Sun et al (see column 2, line 33 to column 3, line 4, column 8, line 65 to column 9, line 32). Therefore, it would have been obvious to one of ordinary skill in the art, having the Normile and Sun et al references in front of him/her and the general knowledge of picture header data, would have had no difficulty in providing the picture header formatting including the indicator as taught by Sun et la for the video encoder of Normile for the same well known compliance with the MPEG protocol and so that the receiving decoder may properly decode the video data purposes as claimed.

11. Claims 6, 38, and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Normile as applied to claims 1, 3, 10, 14, 16, 20/1, 22, 32, 34, 39, 43/32, 45, 53-55, and 60 in the above paragraph (6), and further in view of ITU-Telecommunications Standardization Sector (Proposed Draft of modified Annex L including Copyright, normative Error Concealment, and Exact IDCT Signaling) of record.

Normile discloses substantially the same method of encoding a video signal representing a sequence of pictures to form an encoded video signal, multimedia terminal device including at least one of a video encoder and a video decoder, and video encoder as above, but does not particularly disclose wherein the sequence of video pictures is encoded according to the H.263 video compression standard and the video encoder is arranged to include the indicator in supplemental enhancement information as claimed in claims 6, 38, and 59. Such technical features are however well known and made obvious by ITU-Telecommunications

Standardization Sector (see version 3 extensions, pages 1-5). Therefore, it would have been obvious to one of ordinary skill in the art, having the Normile and ITU-Telecommunications Standardization Sector references in front of him/her and the general knowledge of video compression standards and recommendations, would have had no difficulty in providing the H.263 recommendation with Supplemental Enhancement Information as taught by the ITU-Telecommunications Standardization Sector reference for the video coder of Normile so that the video signal encoded by Normile may be encoded according to the H.263 recommendation and the indicator of Normile may be included in the Supplemental Enhancement Information for the same well known compliance with the MPEG standard purposes as claimed.

12. Claims 12, 21, 44, and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Normile as applied to claims 1, 3, 10, 14, 16, 20/1, 22, 32, 34, 39, 43/32, 45, 53-55, and 60 in the above paragraph (6), and further in view of Yamaguchi et al of record (US 2002/0009141 A1).

Regarding claim 12, since the features as claimed are in the alternative (i.e., including at least one of a video encoder and a video decoder as shown at lines 1-2 of claim 12), either a video encoder or a video decoder needs to be met for anticipation purposes. In the present case, Normile shows a video encoder as shown in Figure 3, and the specifics as claimed pertaining to the video encoder have been addressed in the above paragraph (6).

Normile discloses substantially the same method of encoding a video signal representing a sequence of pictures to form an encoded video signal, multimedia terminal device including at least one of a video encoder and a video decoder, and video encoder as above, but does not particularly disclose a radio telecommunications device and wherein the video encoder is arranged to encode the video signal as a scalable video sequence and to provide alternative

reference pictures for predictively encoded enhancement layer pictures of the scalable video sequence as claimed in claims 12, 21, 44, 63. However, Yamaguchi et al discloses a video encoding and decoding apparatus as shown in Figures 1-4, and teaches the conventional radio communication means for the transmission and reception of compressed video data (see Figure 15A, page 19, sections [0289], [0291], [0293], [0294]) as well as the scalable video codings and enhancement layer video codings (see sections [0008] to [0012], [0039]). Therefore, it would have been obvious to one of ordinary skill in the art, having the Normile and Yamaguchi et al references in front of him/her and the general knowledge of video codings and transmission of video compressed data, would have had no difficulty in providing the radio communication means of Yamaguchi et al as the specific means for transmitting the video data of Normile to a video decoder as well as the scalable and enhancement video codings as taught by Yamaguchi et al within the video coder of Normile so that the video encoder of Normile may be arranged to encode the video signal as a scalable video sequence and to provide alternative reference pictures for predictively encoded enhancement layer pictures of the scalable video sequence for the same well known compliance with the MPEG standard purposes as claimed.

13. Claims 4 and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. Claims 9, 11, 23-31, and 46-52 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Lee whose telephone number is (571) 272-7333. The Examiner can normally be reached on Monday to Friday from 8:00 a.m. to 5:30 p.m, with alternate Fridays off.

RICHARD LEE
PRIMARY EXAMINER

Richard Lee/rl

9/2/05